

I claim:

1           1.     A turbine blade with abrasive tip coating, comprising:  
2     an elongated turbine blade having a tip at one end, said tip having an abrasive coating  
3     including a mixture of cubic boron nitride and silicon nitride.

1           2.     The turbine blade according to claim 1 wherein the abrasive coating  
2     includes a substantially 50:50 mixture of cubic boron nitride and silicon nitride.

1           3.     The turbine blade according to claim 1 wherein the abrasive coating  
2     includes a super alloy of at least one of nickel and cobalt.

1           4.     The turbine blade according to claim 3 wherein the super alloy is  
2     CoNiCrAlY.

1           5.     The turbine blade according to claim 3 wherein the abrasive coating  
2     includes a substantially 50:50 mixture of cubic boron nitride and silicon nitride.

1           6.     The turbine blade according to claim 1 wherein the cubic boron nitride and  
2     the silicon nitride are electroplated to the blade tip.

1           7.     A turbine blade and ring segment assembly, comprising:  
2     a turbine ring segment having an abradable coating on an inner surface thereof;  
3             an elongated turbine blade having a tip at one end, said blade tip having an  
4     abrasive coating, said abrasive coating engaging and abrading said abradable coating  
5     of the turbine ring segment; wherein said abrasive coating of said blade tip includes a  
6     mixture of cubic boron nitride and silicon nitride.

1           8.     The assembly according to claim 7 wherein the abrasive coating includes  
2 a substantially 50:50 mixture of cubic boron nitride and silicon nitride.

1           9.     The assembly according to claim 7 wherein the abrasive coating includes  
2 a super alloy of at least one of nickel and cobalt.

10.    The assembly according to claim 9 wherein the super alloy is CoNiCrAlY.

1           11.    The assembly according to claim 9 wherein the abrasive coating includes  
2 a substantially 50:50 mixture of cubic boron nitride and silicon nitride.

1           12.    The assembly according to claim 7 wherein the cubic boron nitride and the  
2 silicon nitride are electroplated to the blade tip.

1           13.    The assembly according to claim 7 wherein the abradable material of the  
2 ring segment is a thermal barrier coating.

1           14.    The assembly according to claim 13 wherein the thermal barrier coating is  
2 porous.

1           15.    The assembly according to claim 14 wherein the thermal barrier coating is  
2 ceramic.

1           16.    The assembly according to claim 15 wherein the thermal barrier coating  
2 includes yttria-stabilized zirconia (YSZ).

1           17.    The assembly according to claim 16 wherein the thermal barrier coating  
2 includes 8 wt. % YSZ (8YSZ).